

Amendments to the Drawings

The attached sheet of drawings includes changes to Figures 3 and 4. This sheet which includes Figures 3 and 4 replaces the original sheets including Figures 3 and 4. Additionally, an original sheet including Figures 1 and 2 is included with labeling.

Attachments: Original Sheet including Figures 1 and 2 with labeling

Replacement Sheet including Figures 3 and 4 with labeling

REMARKS

Status of the Claims

Claims 1-3 are withdrawn without prejudice to their inclusion in a divisional case.

Claims 4-7 are amended.

Claims 8-11 are new.

The Examiner's suggestions for amendment to better clarify the specification and claims are appreciated and have been incorporated, as will be noted. The initial rejection based on the combinations of prior art references, is however, believed untenable for reasons to be discussed hereinafter.

The References

The Hulsey '034 patent used as the primary reference is indeed concerned with wind uplift forces on membranes which are weld bond united as shown in Fig. 4 of the patent. The solution proposed however, has nothing to do with a process which creates a monolithic bond, and is completely different. The Hulsey patentee's solution is to provide an ovular plate with depending hinged lances 17 formed therein to extend in a common direction in line with some of the shear forces imposed upon the plate by the upward billowing. It is believed that the shear forces portrayed in Fig. 4 would also be imposed crosswisely to the ovular plate dependant on wind direction to cause the lances 17 to also flex laterally about their hinged juncture with the ovular plate.

As the patents referenced well demonstrate, there are numerous different structures where an adhesive is used such as, for example, in securing the entire undersurface of a membrane to the roof (see the cited patent to Ritland 6,742,313), where fasteners are not used. Other patents use tape strips mounted on a reinforced membrane strip 50 on opposite sides of the fasteners as does the Barksdale '162 patent in Figures 4 and 5 at 61, 62. The tapes extend

crosswisely to the roll of roofing material and are coated with a contact adhesive covered by a release paper 63. As Figures 4 and 5 demonstrate, the undersurface of rolled back portion 52B is coated with an adhesive 64 which contacts the contact adhesive tapes and washers 58. Then, the stand up roller 20 is applied along the tapes 61, 62 to apply sealing pressure to them. The Barksdale patent is not directed to what has been described but, rather, to the structure of the roller 20 for applying pressure to the adhesive tapes. Eliminating the adhesive tapes from the process would negate the need for the whole subject roller of the Barksdale '162 patent and this is never an obvious thing to do. Applicant's concept is to provide a process which creates a continuous monolithic bond by following the process steps defined in the Applicant's claims. These process steps have not been followed by the references cited and the Barksdale '62 patentees clearly could not obviously suggest something which Barksdale does not do and would destroy the reason for the roller which is the basis for the Barksdale patent.

Similarly, the later Hulsey '689 patent utilizes the step of laying an adhesive tape with adhesive on both sides of the tape, but in this case over the fasteners only (see Fig.1). The fastener plates are constructed with a vertical wall such as to provide what amounts to a cup-like projection 44, and air escape opening 42 are provided in the cup-like formation. Were the Hulsey patentee to modify the process by covering the fastener plates with a liquid adhesive the liquid would escape through the vent openings 42, and clog the openings so the air bubbles could not escape when, later, pressure was applied to the tape from above as stated in col. 5 lines 5-11. The statement is also made that the adhesive tape used in the Hulsey patent could not cover all of the hole. No one would obviously substitute a liquid adhesive as claimed by Applicant which is monolithic in extent and defeats the very purpose of the Hulsey '689 invention.

The Chiu '172 patent shows a covering membrane splice strip. In the Figure 4 version, a bar is used in conjunction with the tape 21. In Figure 5, a tape 24 is also used.

The Carr '360 patent in both versions uses an asphalt layer 18 which entirely covers a base sheet 14 which also covers the whole roof and is secured to the underlying deck by fasteners 16. Also covering the entire roof is the top layer 20 which is made up of a top laminate 20 and a special fiber laminate constructed to allow penetration of the hot asphalt. As the specification (col. 1 lines 57-60) points out, this is a roof system designed to utilize asphalt as a middle layer over the entire roof. It has nothing to do with Applicant's monolithic bonded fastener projection system.

The Van Note '650 patent is directed to the manner in which a cover 10 (Fig. 10) for a flat roof is joined to a shingled pitched roof. The edge of cover 10 is extended to cover a part of the base shingle 52 and a first layer of liquid roof sealant is applied to its underside. The edge of cover 10 is nailed down by roofing nails 70 through a covering comprising an aluminum flashing 68 and a butyl tape 66, and a second layer of sealant is provided at 74 on top of cover 10. Ahead of the cover 10 upper edge, is a bead of silicone sealant 72 which bridges insulation sheet 56 and the shingle 50. This is not a structure of Applicant's type where there is a continuous monolithic adhesive coating extending from a weld. The space ahead of the fastener flashing is bare of liquid sealant and there is no space created by an upper membrane folding down along the marginal edge face of a fastener projection, for example.

The Gerhardt et al patent simply shows a typical membrane joint with two lapping membrane edges joined by a heat weld and secured by a novel fastening plate 4 which is fashioned to resist wind uplift forces. The whole premise of the invention is the plate structure (see claim 1) so it certainly would not be obvious to do away with it, or with its operation. In col. 3, lines 9-10, the patent points out the plate 4 tends to be tilted around its tilting axis 15 due to the billowing caused by the wind.

The Rejection Issues

Claim 4 has been rejected, as presented over the Hulsey '034 patent in view of the Barksdale et al '414 publication or patent. The Examiner recognizes that no one reference teaches what Applicant has conceived and no process provides the Applicant's claimed monolithic structure. In seeking to modify the method taught by the Hulsey patent in an allegedly obvious manner, it is important to note that Hulsey's solution to the wind uplift problem was to provide a specially designed oval-shaped fastener plate 16, with lances 14 and a central fastening screw, atop the insulation board. The lances 14 have hinged edges 15 joining the lances to the body of the stress plate (col. 3 lines 12-23) which provide hinging action. In Fig. 4 the welded seam is shown at 60 and 70 spaced from the oval plate 10 and there is no thought of providing any kind of monolithic bond. Moreover, the application of an adhesive would eliminate the need for the oval plate of the Hulsey invention with hinged lances reactive to forces having a component perpendicular to the hinge line and would prevent any hinging action.

The Barksdale patent teaches the application of adhesive 64 to the underside of a peeled back portion which is to join to the spaced apart adhesive tapes 16 and 62. There is no suggestion of providing steps which result in a monolithic (weld bond and liquid adhesive coating) structure. The Barksdale structure discloses a joint for joining adjacent membranes using a reinforced splice strip 59, and not a membrane having a fastener tab. While it is Applicant's strong view that no one would seek to do what is suggested as obvious because neither reference, and only Applicant, suggests a monolithic structure, it is clear anyone following the teaching of Barksdale could only use spaced apart adhesive tapes 61 and 62 and adhesive coating applied to the underside of the peeled back membrane. Applicant preferably applies such an underside coating also but only in combination with a first coating applied monolithically with a weld over Applicant's fastening projections. A coating applied only to the

underside might be sufficient for adhesive tape splices but not for wind forces of an extreme nature such as are being encountered more frequently these days with hurricanes and tropical storms of a severe nature. Note the space around Applicant's fasteners plates at W and the fact the spaces are filled with liquid adhesive due to direct gravity application of the first coating over and around the fastener plates. Note also the Applicant's filled space 17 and the empty spaces in Barksdale's Fig. 5. Of course, Barksdale's invention relates to a roller which is adapted for the individual seams created by the spaced tapes and for which, otherwise, there would be no need. Moreover, when Applicant coats both the fastener projection and fastener system along with the peeled back membrane undersurface, no reversal of steps position, as stated in the office action, is possible.

Regarding the further application of the patent to Van Note, or Carr or Chiu to the non-tenable combination of references discussed to allegedly teach the subject matter of claims 5 and 6, it is pointed out once more that none of these patents conceive of the monolithic structure or the steps followed to achieve it. Applicant draws attention to Figure 3 of Applicant's drawings, the space W and the space 17 created when membrane 11 is folded down.

In the Van Note patent, the sealant 60 applied to the underside of cover 10 extends only to an aluminum flashing 68 and a butyl tape 66 which does not extend down past the edge of cover 10. The bead of sealant 72 is not a part of sealant coating 60 and does not connect to it. Moreover, this is not a system of weld bonded membranes in which plate wells W (Applicant's Fig. 3) are filled, or wherein a second membrane folds down over the fastener edge of a first membrane to capture a portion 17b of the adhesive coating (note Barksdale's Fig. 5) trapped by a second membrane.

The Examiner is believed not interpreting the structure of the Carr '360 patent correctly. The layers do not extend down past edge but rather are continuous coextensive independent layers covering the entire roof. The drawings are misleading in the sense that the layers 14, 20,

24, including the asphalt layer 18, are shown broken off. Applicant does not use a complete asphalt or other layer. Rather, Applicant uses fastener tabs or projections and uses a grip-pull membrane tautening device between its monolithic systems.

Finally the Chiu patent shows adhesive tapes 12, 14, 19, 22, and 24. One need only inspect Figure 4, for example, to see that the Chiu space (Applicant's 17b) is not filled with adhesive. In no way are the tapes capable of acting as a liquid adhesive coating to create Applicants' monolithic bond. What Mr. Chiu has done is invent a new adhesive tape (see col. 11 lines 62-63) which requires rolling to press down over fastening bar 14. Nothing describes any method, other than that a primer is applied to the contact surface which then is allowed to dry before repositioning the overlapping areas and pressing them together with a roller as stated in co. 7 lines 50-54.

Claim 7 was rejected on a new combination of references comprising the Gerhardt et al patent and the Barksdale et al patent. As earlier pointed out, both the Hulsey patent and the Gerhardt patent claimed a new fastener plate as the invention to solve wind uplift problems, and the monolithic structure envisioned by Applicant's steps was never contemplated. The acclaimed tilting effect about the tilting axis to combat wind uplift because of the lever arm effect to uplift the long edge of the plate (see Gerhardt's abstract) could not occur if the plate 4 in Gerhardt was anchored with liquid adhesive, and there would be no need of it. Gerhardt does not suggest a process for creating a monolithic structure including a weld bond, as only Applicant does. As indicated earlier with respect to claim 4, no one would obviously negate the operation of the Gerhardt inventive plate of the basic reference by preventing its operation. Anyone would, in any case, follow what is suggested, namely the Barksdale practice of utilizing spaced apart adhesive tapes on a splice strip. Applicant's method places liquid adhesive in spaces W and 17b, as shown in Applicant's Figure 3, and taught by no reference. It is again noted that Applicant discloses coating both the fastener tab directly as well as the undersurface

of a second membrane so this is no duplication of parts as contended. Spaces W and 17b (Applicant's Fig. 3) filled in Applicant's method are not considered or treated by Barksdale whose focus and suggestion is to provide adhesive tapes (not something else) to be rolled down by the Barksdale roller claimed.

A replacement drawing (so labeled) with several new identifying indicia is included herewith for the Examiner's approval (a complete set of labeled drawings is attached). As for 12a, it is noted that it is used in the specification on page 5, paragraph [0018] line 2. Its lead line has been altered slightly to improve the description. No new matter has been added to the case as evidenced by the original specification and drawings, and particularly Fig. 3.

In view of the above amendments, Applicant respectfully submits that each item raised by the Examiner in the Office Action of June 13, 2006 has been addressed. The Office Action indicates that in no one document is there a complete listing of all the pending claims. The foregoing amendment provides a complete listing of all the claims addressed (as well as amendments to the specification and remarks) in one document and indicates the appropriate status identifier and text for each claim. Further, this Amendment restates the amendments and remarks set forth in Applicant's previously filed Amendment mailed November 29, 2005 and received by the Patent Office on December 1, 2005 (correcting certain typographical errors).

Applicant believes that no fee is due for the claim amendments presented in this paper.

CONCLUSION


It is respectfully submitted that in view of the above amendments and remarks, each of the claims in this Application is in condition for allowance and such allowance is earnestly solicited.

The Examiner is invited to telephone the Applicant's undersigned attorney at (248) 364-4300 if any unresolved matters remain.

Any needed extension of time is hereby requested with the filing of this document.

The Commissioner is authorized to charge any additional fees or credit any overpayment to Deposit Account No. 50-1612 (Warn Hoffmann Miller & LaLone PC). A duplicate copy of this letter is enclosed herewith.

Respectfully submitted,

by 

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